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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,222	02/27/2004	Toyotaka Yuasa	1021.43559X00	4833

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EXAMINER

CRUPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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08/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/787,222

Applicant(s)

YUASA ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6, 10-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 10-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 6/9/08 6/10/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1, 6, 10-12, and 14. The claims remain rejected under 35 USC 103 for the reasons of record. Accordingly, this action is made final.

Information Disclosure Statement

2. The erroneous citation of 2003-166685 on the IDS of 6/9/08 has been crossed out, per Applicant's comments in the IDS filed 6/10/08.

Claim Rejections - 35 USC § 103

3. Claims 1, 6, 10-12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-243951 in view of WO 03/044881.

In the abstract, JP '951 teaches a positive electrode material comprising secondary particles formed from primary particles. The primary particles are connected to each other by sintering. In the abstract, it is disclosed that the material may comprise LiCoO_2 . As disclosed in [0025] of the machine translation, up to 40 mol% of the cobalt may be replaced with metals such as nickel and manganese. Regarding claims 6 and 12, the mean particle size of the primary particles is 0.4-10 microns.

However, JP '951 does not expressly teach that the length in which the primary particles are linked on the section of the secondary particle is equivalent to 10-70% of the length of the whole periphery on the section of the primary particle, as recited in claims 1 and 11.

However, the reference would motivate the artisan to employ primary particles with relatively large portions of their surfaces touching, thereby rendering the claimed range obvious. As noted above, in the abstract, it is taught that the primary particles are sintered together. Further, in paragraph [0013] of the machine translation, the reference teaches that by sintering, it is possible to raise electric conductivity, to reduce the quantity of a required conducting agent and to raise pack density. The artisan would be motivated by these teachings to manufacture the secondary particles such that relatively large portions of the surfaces of the primary particles are touching each other. Accordingly, the limitation in claims 1 and 11 that the length in which the primary particles are linked on the section of the secondary particle is equivalent to 10-70% of the length of the whole periphery on the section of the primary particle would be rendered obvious.

JP '951 further does not expressly teach that the voidage of the secondary particle is 2.5-35%, as recited in claims 1 and 11.

However, this limitation would also be rendered obvious to the skilled artisan. As noted above, in [0013], it is taught that "pack density" may be increased, which would be the inverse of the claimed voidage. Accordingly, the voidage may be reduced to a relatively low value, thereby rendering the claimed range of 2.5-35% obvious.

JP '951 further does not expressly teach that the positive electrode material comprises $\text{Li}_x\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$, as recited in claim 1.

WO 03/044881 teaches an $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ material in the abstract. Example 3 in Table 1 discloses a composition falling within the subscript ranges recited in claim 1.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ composition of WO '881 as the active material of JP '951. In the abstract, WO '881 teaches that a positive electrode and a lithium cell using this material have a high energy density and excellent charging/discharging cycle performance. Accordingly, the artisan would be motivated to use the $\text{Li}_x\text{Mn}_a\text{Ni}_b\text{Co}_c\text{O}_2$ composition of WO '881 as the active material of JP '951.

Response to Arguments

4. Applicant's arguments filed June 9, 2008 have been fully considered but they are not persuasive. Applicants contend that the claimed limitation regarding the range of contact length distinguishes over the Matsumoto reference (JP '951). Initially, Applicants state that "in case of LiCoO_2 type positive electrode material of Matsumoto et al., each of the secondary particles includes such primary particles having relatively too large contact areas partly or locally" (page 8, third full paragraph of remarks). However, Applicants then state, "The Matsumoto et al. publication discloses that electron conductivity can be improved by sintering, but fails to teach increasing the contact areas among primary particles" (page 9, first paragraph). It is noted that Applicant's second point appears to contradict the first. On the one hand, it is contended that the primary particles of Matsumoto have too much contact, and the other hand, it is contended that

there is not enough contact. Applicants further state on page 7, last paragraph that the sintering process of Matsumoto produces more contact at the center of the secondary particle than at the radially outer portion thereof. In response, it is the position of the Office that there is not yet sufficient evidence to support this characterization of the Matsumoto reference. The reference has been reviewed and no explicit support for differences in primary particle contact within a secondary particle can be found. Thus, the arguments are not sufficient to obviate the rejection under 35 USC 103.

Even if Applicant's argument regarding the primary particle contact on the inside vs. on the periphery of the secondary particle was supported by the reference, it is submitted that the claim language is still broad enough to read on such a structure. Claims 1 and 11 recite that "length on which *the primary particles* are linked...on the section of the primary particles" (emphasis added). The language does not specify *which* primary particles must have the claimed characteristic, as it merely recites "the primary particles" which are located on "the section" of the primary particles. It appears that Applicant's intent is to recite that all of the primary particles in the secondary particle have the claimed characteristic, but this is not yet recited in the claims.

It is further noted that the claimed invention and the particles of Matsumoto appear to be made in a very similar way, which supports the Examiner's position that they are not patentably distinct from each other. The claimed particles are made by a sintering process at a temperature of 950-1100 C (instant specification, [0018]). The disclosure of Matsumoto does not appear to give a broad sintering range, but discloses an exemplary sintering process using a temperature of 900 degrees in air for 10 hours in Example 1. This temperature is very close to the lower limit of

950 degrees disclosed in the instant specification, and further lends support to the conclusion that the product of in the instant invention and the product of Matsumoto are not patentably distinguishable. Additionally, there is no evidence of record comparing the instant invention to the material of Matsumoto. Applicant's statement that the three features of the present invention (contact range, voidage, and composition) provide for a secondary battery having good low temperature characteristics while still having good cycle life is noted. However, it is the position of the Office that such results have not been adequately demonstrated in comparison with the disclosure of Matsumoto, the closest prior art. As such, the rejection under 35 USC 103 above is still believed to be proper.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795
August 23, 2008